Week 2 Quiz

Help Center

The **due date** for this quiz is **Sun 16 Aug 2015 7:30 PM EDT**.

☑ **In accordance with the Coursera Honor Code, I (Mike Martoccia) certify that the answers here are my own work.** **Thank you!**

Question 1

Suppose I define the following function in R

```
cube <- function(x, n) {
        x^3
}
```

What is the result of running

```
cube(3)
```

in R after defining this function?

- (•) The number 27 is returned
- ( ) A warning is given with no value returned.
- ( ) An error is returned because 'n' is not specified in the call to 'cube'
- ( ) The users is prompted to specify the value of 'n'.

Question 2

The following code will produce a warning in R.

```
x <- 1:10
if(x > 5) {
        x <- 0
}
```

Why?

- ○ There are no elements in 'x' that are greater than 5
- ○ The syntax of this R expression is incorrect.
- ○ The expression uses curly braces.
- ○ You cannot set 'x' to be 0 because 'x' is a vector and 0 is a scalar.
- ◉ 'x' is a vector of length 10 and 'if' can only test a single logical statement.

Question 3

Consider the following function

```
f <- function(x) {
        g <- function(y) {
                y + z
        }
        z <- 4
        x + g(x)
}
```

If I then run in R

```
z <- 10
f(3)
```

What value is returned?

- ○ 16
- ○ 7
- ○ 4
- ◉ 10

Question 4

Consider the following expression:

```
x <- 5
```

```
y <- if(x < 3) {
        NA
} else {
        10
}
```

What is the value of 'y' after evaluating this expression?

- NA
- 5
- 10
- 3

Question 5

Consider the following R function

```
h <- function(x, y = NULL, d = 3L) {
        z <- cbind(x, d)
        if(!is.null(y))
                z <- z + y
        else
                z <- z + f
        g <- x + y / z
        if(d == 3L)
                return(g)
        g <- g + 10
        g
}
```

Which symbol in the above function is a free variable?

- f
- z
- d
- L
- g

Question 6

What is an environment in R?

- (•) a collection of symbol/value pairs
- ( ) an R package that only contains data
- ( ) a list whose elements are all functions
- ( ) a special type of function

Question 7

The R language uses what type of scoping rule for resolving free variables?

- (•) lexical scoping
- ( ) compilation scoping
- ( ) dynamic scoping
- ( ) global scoping

Question 8

How are free variables in R functions resolved?

- ( ) The values of free variables are searched for in the global environment
- ( ) The values of free variables are searched for in the environment in which the function was defined
- (•) The values of free variables are searched for in the environment in which the function was called
- ( ) The values of free variables are searched for in the working directory

Question 9

What is one of the consequences of the scoping rules used in R?

- ○ Functions cannot be nested
- ○ R objects cannot be larger than 100 MB
- ◉ All objects must be stored in memory
- ○ All objects can be stored on the disk

Question 10

In R, what is the parent frame?

- ○ It is the environment in which a function was called
- ○ It is the package search list
- ◉ It is the environment in which a function was defined
- ○ It is always the global environment

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